

# Notice of Allowability

Application No.

09/480,506

Examiner

Andrew Hwa S. Lee

Applicant(s)

YAMAMOTO ET AL.

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/13/04 and 10/4/04.
2. ☒ The allowed claim(s) is/are 53.
3. ☒ The drawings filed on 08 March 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Remarks*

This Notice of Allowance is in response to Applicant's response of 9/13/04 and 10/4/04. The terminal disclaimer and claim amendments of 9/13/04 have been entered. By the amendment, claims 1-52 have been cancelled and new claim 53 has been entered.

### *Allowable Subject Matter*

**Claim 53 is allowed.**

The following is an examiner's statement of reasons for allowance: In view of the terminal disclaimer, as the Applicant has stated in Applicant's response of 9/13/04, the prior art of record fails to show or to suggest an optical displacement sensor for measuring a displacement of a scale having the combination of all the limitations as presently claimed. In particular, the combination of:

- a) the optical distance along the principal axis of the light beam from the beam emitting surface of the surface emitting laser light source to the scale surface where the diffraction grating formed is *equal* to the optical distance along the principal axis of the light beam from the scale surface to the photosensor ( $z_1=z_2$ );
- b) the surface emitting laser light source and the photosensor are arranged the same side of the scale, and the scale surface where the diffraction grating is formed is parallel to the light receiving surface of the photosensor; and

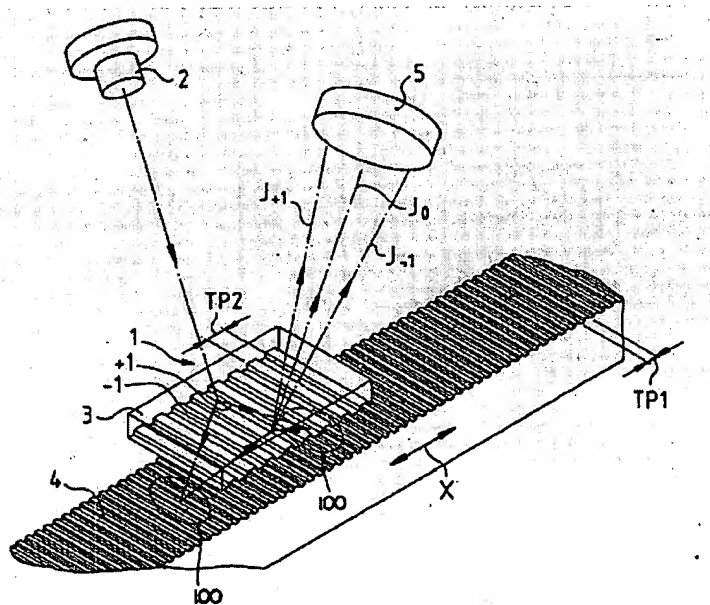
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c) a surface emitting laser light source is perpendicular to the direction of the predetermined direction and inclines at a predetermined angle relative to a line perpendicular to a surface of the diffraction grating within a plane perpendicular to the direction of the predetermined direction.

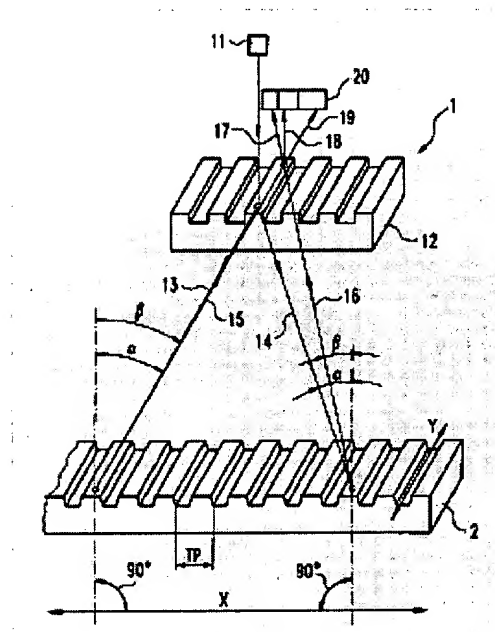
### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

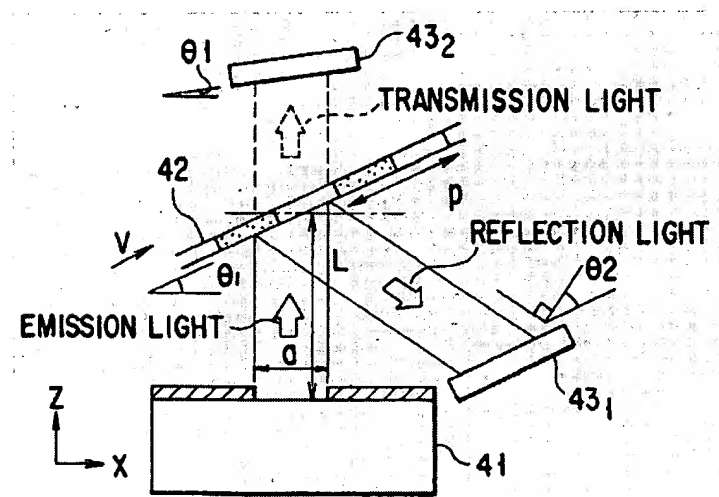
**Huber et al (US 5,424,833)** show an interferential linear and angular displacement apparatus having scanning and scale grating respectively greater than and less than the source wavelength.



Speckbacher et al (US 6,445,456) show a photoelectric position measuring device:



Kawakubo et al (US 5,671,052) show an optical encoder:



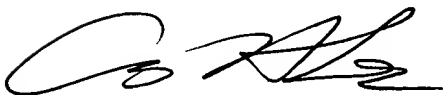
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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa S. Lee whose telephone number is 571-272-2419. The examiner can normally be reached on Tue-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Andrew Hwa S. Lee  
Examiner  
Art Unit 2877